

### Remarks

#### Rejections under 102(b)

Edwards does not teach or suggest Applicant's method of "inducing a radio frequency magnetic field" according to a first and a second "substantially simultaneous pulse sequences associated with the first and second nuclei...." (Independent claims 1, 16 and 19.) Edwards does indeed propose pulse sequences for determining certain quantities or basic identification of certain nuclei within a test sample. However, Edwards uses standard chemical shift spectrum principles for its acquisition and analysis. Such chemical shift spectrum using downhole NMR is discussed by Applicant at least a paragraph 7 and in conjunction with Applicant's figure 4. As discussed there, Edwards provides only for information relating to homonuclear couplings contrasted with the heteronuclear coupling information obtained with Applicant's "substantially simultaneous pulse sequences." Figure 6 of Edwards illustrates this point. In figure 6, although Edwards proposes multiple frequencies, these are applied in succession, not substantially simultaneous. Further, the other pulse sequences from Antennas 2 and 3 of Edwards, uses the same frequency as the first antenna, but are applied to different regions of the sample. For at least these reasons, Applicant respectfully requests reconsideration of the rejection.

#### Rejections under 103(a)

The combination of Kleinberg and Watanabe is improper as relating to divergent technologies. Kleinberg relates to techniques for performing NMR analysis in a downhole fluid sampling tool. Watanabe relates to a medical diagnostic MRI device for use on human patients. As is the case for most of the diagnostic MRI prior art, the limitations of space and power available in a downhole environment preclude diagnostic MRI innovations from application on a wellbore tool. This is the case here, where the amount of power and type of MRI apparatuses discussed in Watanabe are simply not available on a downhole tool such as Kleinberg. An alternative interpretation would obviate most of the recent patents related to downhole sampling tools incorporating NMR hardware and methodology.

With specific relation to the claim language, Kleinberg does not suggest the ability to obtain "j-coupling information" "in a borehole" from an earth "formation fluid sample". Wanatabe nowhere discloses its application outside the medical diagnostic field, such as to analyze formation samples, much less doing so "in a borehole." Thus, a person of ordinary skill in the art, when reading Wanatabe, would be left with the well accepted notion that the limitation normally associated with downhole NMR would not allow application of Wanatabe to Kleinberg's fluid sampling device.

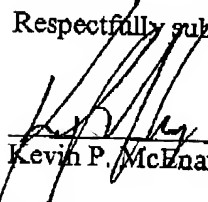
The rejection of the dependent claims are traversed for the above recited reasons and for depending from allowable independent claims.

### CONCLUSION

The Applicants believe this paper is fully responsive to each and every ground of rejection and objection cited by the Examiner, and respectfully request that the application proceed to grant.

Please charge any applicable fees, or apply any excess, to deposit account number 19-0610.

Respectfully submitted,

  
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Date

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